

## **Intermediate-Range Order of Ni-based Ternary Amorphous Metals**

Traditional X-ray experiments determined Radial Distribution Functions (RDFs) of  $\text{Ni}_x\text{Nb}_y\text{Sn}_{100-x-y}$  bulk amorphous alloys found a divergence from a random hard-sphere model with respect to neighbor shell distances/coordination numbers. However, these functions do not provide information about the specific contributions of any individual element. Solving the Partial Pair Distribution Functions (PPDFs) by varying the composition, or by chemical substitution, assumes similar behavior in different chemical environments, which may not be the case. Anomalous x-ray scattering provides better way to probe the local interactions of specific chemical pairs. Data near and far from the absorption edges of individual elements gives Differential Distribution Functions (DDFs), revealing the atomic arrangements. High-resolution synchrotron anomalous scattering experiments have indicated Ni-based clustering effects. This non-random distribution of atomic species may partially explain the failure of the random model. An analysis is given in terms of the short and intermediate range order of this series.

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